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THE FOCAL SPOT

JOURNAL OF THE CANADIAN SOCIETY OF RADIOLOGICAL TECHNICIANS

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News Items from the Provinces

ALBERTA DIVISION C.S.R.T.

(CALGARY BRANCH)

The November meeting of the Calgary Branch was favoured with a very informative talk on "The Pelvis in Relation to Pregnancies" by Dr. Barbara Humphries.

During the business session Mr. G. Graham presented the nominations of office for 1951. The following officers were elected from Calgary district, both for Provincial and Local organizations:

ALBERTA DIVISION

Provincial President: Mr. J. L. Welch.
Provincial Secretary: Miss E. Shortt.
Southern Representative: Mr. S. Mathews.

CALGARY BRANCH

President: Miss V. White.
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Secretary-Treasurer: Miss A. McNiel.
Social Convener: Miss J. Hayton.
Programme Convener: Mr. G. Graham.
Sub-Editor for Focal Spot, Miss Yvonne Clark, Calgary General Hospital.

Prior to the business session at the December meeting, a film on "Research in Industry" was presented. The rest of the evening was occupied with preparations for our annual dinner.

January 12th found the Calgary Technicians and Radiologists once again in the comfortable surroundings of the Officers' Mess in Mewata Barracks for our annual banquet and dance. A grand evening started with the cocktail party at 6.30, a scrumptous menu with filet mignon (from Alberta cattle), and to put every one in good spirits for the dancing and fun to follow, we had as our after-dinner speaker Mr. Richard Needham, associate editor of the Calgary Herald, who brought on a half hour of solid laughter. Dancing went on until the wee hours, and for all I know some of the x-ray service men are still there.

A few of our local technicians have been on the move again: Mr. Ed. Wheeler, our past president, is now working in Bellingham, Wash., U.S.A.

Miss Doreen Calvert with Dr. K. D. S. Symington, Miss Joyce Swanson to the Associate Clinic, and Mrs. Shortt with Dr. A. Gelfand. Oh yes, Miss Ethel Hryciuk got homesick in St. Catharines and is now back at the Colonel Belcher Hospital.

That's about it from Calgary.

—JOHN L. WELCH, R.T.,
Sub-Editor.

EDMONTON BRANCH

On November 25th, 1950, the Edmonton Branch held their annual graduation banquet and dance at the Macdonald Hotel. Our President, Mr. R. McQueen, presided and about fifty couples attended in honor of the graduating class of May-November 1950.

The graduate tables and the head table were decorated with blue and gold chrysanthemums. Place cards containing the names of the graduates and the programme were at each table. The class was addressed by Dr. P. H. Malcolmson and presented with their diplomas from the local Branch. Miss Lois Kennedy gave the valedictory and expressed the appreciation of the class for the help given by the radiologists in the past two years.

After the banquet and speeches, Mr. W. Kelly, tenor, from the University of Alberta, favored the technicians and their guests with several selections which were greatly enjoyed. Dancing commenced at 9 o'clock and a most pleasant evening followed.

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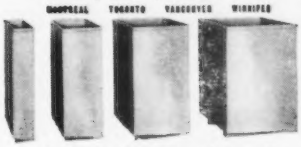

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Congratulations are extended to our candidates who were all successful in the November examinations.

At our December meeting we discussed the possibility of persuading the hospitals in the city to give the technicians on night call some compensation for their efforts. This was left to a committee to be reported on at our January meeting. We understand that some hospitals have a very reasonable scheme for their technicians who take call duty and we would like to do something similar here.

The January meeting was held at the Misericordia Hospital. Our executive was unanimously elected for another year. A ways and means committee and a social committee were elected. The committee on night calls is to prepare a brief for the hospitals. A delicious lunch was provided by the Royal Alexandra Hospital technicians at the close of our business session.

We are pleased to see that more are attending the monthly meetings. We cannot have a successful and worthwhile organization without the support of every technician at every meeting.

One of our recent graduates, Miss Theresa McNeil, has taken a position at Kamloops. Best wishes, Theresa, and good luck.

Lectures have resumed after the festive season. Dr. R. Hall is giving radiography every Thursday evening.

—MARIE LACEY, R.T.,
Sub-Editor.

BRITISH COLUMBIA DIVISION C.S.R.T.

Since the last issue of *The Focal Spot* the holidays have come and gone. It was all rather hectic while it lasted, but I think all members pulled through in a very able manner. What with holidays and elections, the B.C. Division has been very busy in both branches.

Meetings in the Vancouver Branch have been very poorly attended and this has been a source of much worry to the executive, whose duty it is to try and make meetings interesting and instructive. In November Mr. W. Papper, formerly Eastman representative in the West, and now on the retired list, showed a group of beautiful colored slides which he took on a trip to Florida. The pictures were lovely and Mr. Pepper's comments were witty and worthwhile. At the December meeting, Dr. G. I. Norton of the Vancouver General Hospital gave a very interesting address on Gynaecology and X-ray. He proved to be a very able speaker. The January meeting brought Dr. Christina Fraser, Radiologist at the Seymour Clinic. Dr. Fraser gave a breezy and witty talk on her experiences as a passenger on a freighter from Vancouver to the eastern end of the Panama Canal. This was a delightful and amusing address and Mr. Bob Olafsen expressed the thanks of the society for her efforts on our behalf.

The Victoria Branch seems to have a livelier bunch of members than the Vancouver Branch and they turn out in numbers almost equal to the older branch although there are fewer members in that branch. The November meeting listened to an excellent talk on X-ray Therapy by Dr. Gilmore of the Royal Jubilee Hospital staff. He was accorded an attentive hearing. At the December meeting Mr. Len Martin of the General Electric X-ray Corporation, showed some fine movies and his efforts were very much appreciated by all the members.

Owing to lack of space it is impossible to go into the details of addresses given at both meetings. Perhaps the best way for members to obtain such details would be to attend the meetings.

A joint meeting of the B.C. Division was held in Victoria early in November and much good work was accomplished. The First Annual Meeting of the B.C. Division since the formation of two branches will be held in Victoria in the latter part of February. It is to be hoped that many of the mainland members will journey over

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to the Island for this event. It will be on a smaller scale than the C.S.R.T. meeting, but nevertheless enjoyable.

Elections of officers for 1951 have been completed in both branches as follows:

Vancouver Branch:

President ..... Miss Corrie Chard, R.T.
Vice-President ..... Miss Pat Rogers, R.T.
Secretary ..... Miss J. Goodall, R.T.
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We are very pleased to announce that our By-laws will be ready for approval and adoption at the Annual Meeting and as soon as they are passed they will be printed in booklet form and sent to all Paid-up Members. Now that is one reason why members should pay up as soon as possible! Another reason for Ordinary Members is because if not paid up their names will not appear in the 1951 Registry in the Spring issue of *The Focal Spot*. That is a horrible thought and one that should be the urge to get the money to the Treasurer forthwith.

May I urge you all to be good members of your branch by asking you to attend meetings, pay your dues, and help to make the B.C. Division one of the most potent in the C.S.R.T. by lending your assistance where possible. Your new executive officers expect this and your own conscience demands it. The B.C. Division made a grand reputation last September—let us try to make that reputation even better still!

—W. Q. STIRLING, R.T.
Sub-Editor.

MANITOBA DIVISION C.S.R.T.

ANNUAL MEETING

One of the best attended and most enthusiastic annual meetings of the Manitoba Division was held December 13th at the Winnipeg Medical Arts Club rooms and included a buffet supper. After a keenly contested election, the executive for 1951 was elected as follows:

President: Mrs. Mary Reid, R.T., Manitoba Clinic, Winnipeg.

Vice-President: Mrs. Mina Stewart, R.T., Winnipeg General Hospital.

Secretary-Treasurer: Mrs. Catherine Coulson, R.T., Victoria Hospital, Winnipeg.

At the C.S.R.T. annual meeting in Vancouver, the Board of Directors honoured Mr. C. J. Bodle with a Life Membership. This appropriately framed certificate was presented to Mr. Bodle during the evening by Mr. Wm. Doern, President of the C.S.R.T. In replying, Mr. Bodle expressed his pleasure in having been so honoured and pledged himself to further service on behalf of the Society.

The January meeting took place at the Shriners' Hospital for Crippled Children. Members toured the new hospital and then assembled downstairs for the business meeting. Dr. McGibbon, chief surgeon of the new hospital, gave a most interesting talk, showing us examples of their work with the children. Mr. Doern showed his films of Vancouver and Victoria, taken while he was attending the convention last year.

Student members were urged to select a representative from among themselves in order to express their opinion at our meetings.

The annual convention of the C.S.R.T. will be held in Winnipeg this year. Committees are all chosen and are working hard under the chairmanship of Mr. Gordon Axtell.

Many of us are looking forward to the annual banquet and dance held in honour of the 1950 graduates. Our first one was held last year and proved to be such a success that it was decided to continue the practice. It certainly is enjoyed by both students and graduates. A full report of this highlight of the year will appear in the next issue.

It is with deep regret that we learn that Dr. Petrie has had the misfortune of being in a car accident early in January and will be confined to bed for a number of weeks. We join

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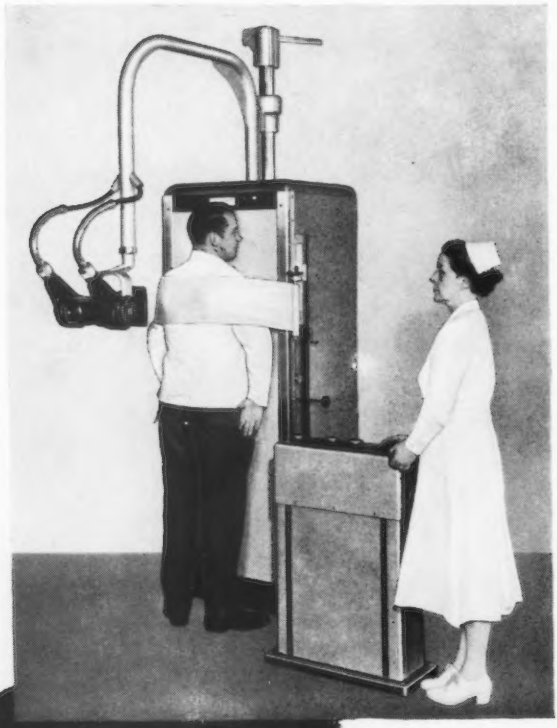

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The Focal Spot

Journal of the Canadian Society of Radiological Technicians

EDITOR
LESLIE J. CARTWRIGHT, R.T.

"All our ambitions should be devoted to a faithful fulfilment of duties towards others as well as to ourselves."—Roentgen.

Volume 8 TORONTO WINTER 1951 *Number 1*

Radium and the Technician

By FLORE JOYAL, R.N., R.T.

Institut du Radium, Montreal, Que.

Translated from the French by Guillaume Gill, M.D.

What is Radium?

What is its Source?

RADIUM is an alkaline salt with extremely high radiant power, isolated from pitchblende by M. and Mme. Currie in 1896. The radioactive ore is found in several countries, France, Australia, Africa, United States and Canada.

In order to obtain a small quantity of Radium, large quantities of radioactive ore must be treated. For example: 32 tons of ore, 12 tons of chemicals, 8 tons of coal, 600 tons of rinsing liquid, are used to obtain one gramme of Radium. This explains why Radium has to be sold at such a high price. Since the Atom Bomb, however, Radium has become a by-product of Uranium. It is now possible to obtain Radium at an approximate price of $15,000 a gramme, as compared with $120,000 a gramme in 1920.

Radioactivity

Radium is a radioactive salt. What is radioactivity? Radioactivity is the quality inherent in certain substances to give off radiation, presenting two peculiarities: firstly, they are spontaneous; secondly, atomic.

They are spontaneous: Meaning that no temperature or pressure condition, no magnetic or electric influence can modify them.

They are Atomic: Meaning that they are not dependent on the chemical combination in which the Atom is involved. Radium radiation results from the disintegration of the nucleus of its atom. It comprises three types of rays which are named according to the first three letters of the Greek alphabet: Alpha, Beta, and Gamma. They all have general properties and particular characteristics. (N.B. Alpha and Beta rays are not truly rays, they are particles; in practice, we may call them Alpha or Beta particles or rays.)

General Properties:

(a) Physical effects: They ionize gases and stimulate the fluorescence of certain substances, platino-cyanide of barium for example.

(b) Chemical effects: They affect a photographic film.

(c) Caloric effects: They produce heat.

(d) Biological effect: According to their nature they penetrate more or less and modify organic and inorganic substances. This is what makes them so useful in therapy (Beta and Gamma rays).

Particular Characteristics: (given simultaneously for better understanding)

(a) Proportion of each group of radiations:

Alpha rays—represent 92% of the total radiation from Radium.

Beta rays—represent 3.2%.

Gamma rays—represent 4.8%.

(b) Their nature:

Alpha rays—are positively charged atoms of Helium.

Beta rays—are electrons, meaning they are negatively charged particles.

Gamma rays, on the contrary, are not electrically charged. They are electromagnetic vibrations of the ether, which makes them similar to x-rays.

Electro-magnetic vibrations are secondary to Alpha and Beta radiations which ionize gases, thus bringing forth the transformation and disintegration of the nucleus of radium's atom.

(c) Their speed:

Alpha rays—have a speed of 20,000 kilometers per second.

Beta rays—have a speed of 50,000 kilometers per second.

Gamma rays—have a speed of 300,000 kilometers per second, which puts them in the same range as the speed of light.

(d) Their penetration:

Alpha radiations—have but a small penetrating power. A thin layer of air or a single sheet of paper is enough to stop them. They are not used in Curie-Therapy.

Beta radiations—form an heterogeneous beam made up of hard and soft rays with more or less penetrating power. A filter made of 0.5 mm of platinum or 1 mm of lead stops them almost completely. They are used in Curie-Therapy and this method is known as Betatherapy.

Gamma radiations—are the most penetrating rays of Radium. As with Beta rays, they form an heterogeneous group composed of hard and soft rays. A filter made of 2 mm of platinum stops the majority of soft rays, but 82% of the hard rays still pass through. It has been calculated that to have x-rays as hard and with the same penetrating power we would need x-ray tubes working with a tension of 1,500,000 volts.

Radium Element and Emanation of Radium or Radon

Radium element and Radon are both used in radium-therapy.

Radium element is prepared in the form of insoluble and soluble salts.

The insoluble salts are composed of radium carbonate or sulphate. Radium sulphate is especially used. It comes from treated radioactive minerals and sealed in small glass tubes. One month is necessary to reach the radioactive equilibrium (which will be explained later on). As far as the decay period is concerned, Radium has a half life of 1,690 years and, in practice, it need not be considered.

The soluble salts are made of radium chloride or bromide, and are used to extract Radon. A delicate apparatus, made of glass, and a considerable quantity of soluble salts (usually 1 gramme) are necessary for this extraction. The apparatus includes a mercury pump to draw off gases emanating from the main solu-

tion enclosed in a container connected to the apparatus. Radon must be purified from the hydrogen, carbonized gases of helium and water vapors aspirated with emanation from the radium.

Radon is then compressed and condensed in a capillary glass tube fixed at the end of the last mercury trap. This capillary tube is filled with radon and cut to desired lengths by a small flame that seals as it cuts the end of each tube.

So prepared radon is now ready to be put in the lead or platinum tubes, used for the filtration of rays. Before using this radon, 4 hours must elapse in order that Alpha and Beta radiations by their action on radon's atom, make radon reach its maximum radiating power.

If radon's ascending curve is fast compared to that of radium, its declining curve is also fast because its half life is less than four days. Thirty days is its life limit.

External application in moulages is the chief indication of radon in Radium-Therapy but it can also be used in deep tissues as "seeds".

Mass and Activity Units or Emanation

The Gramme: The mass unit of Radium is the gramme. In Curie-therapy, the quantity of radium used is much smaller and the milligramme is the practical mass unit.

The Curie: The activity unit or emanation of radium is the curie. It is represented by the quantity of emanation in equilibrium with one gramme of Radium. As in the case of mass unit, the millicurie is used.

The millicurie is then the quantity of emanation in equilibrium with one milligramme of Radium. Explanation of this fact: If one milligramme of Radium is placed in a sealed glass tube, liberation of Alpha particles takes place and radon or radium emanation is produced. At the same time radon decays by itself. Destruction will be less than production; it takes 30 days to obtain the equilibrium between production and destruction of radon.

Once this equilibrium has been obtained, the quantity of destruction remains in proportion of the quantity of production. This is the radio-active equilibrium. For one milligramme of radium, there will be a destruction of 1/133 of a millicurie per hour and production of the same quantity during the same period of time. The millicurie destroyed is then the quantity of radon destroyed in the tube of radium and not in the treated tissues.

Measure of Radiferous Apparatus

The knowledge of the exact quantity of radium contained in an apparatus is a self-evident necessity. For measuring it we use a method based on the property of radium to ionize the air. Ionization is in direct function with the intensity of radiation and radiation is in direct proportion to the quantity of radium giving it.

To measure the value of an ionization current we use an electroscope. When the electroscope is charged the golden leaf moves away from the shaft; if we introduce a radiant source, the electroscope is discharged because of the ionization of the air, and the leaf of the electroscope falls with more or less rapidity. If under known conditions we calculate the falling speed of the leaf, first for the source to be measured and then for a known quantity of radium, it is easy, by a simple

equation, to determine the quantity in the unknown source or apparatus.

Although radiferous apparatus are always delivered with a certificate attesting their weight in radium, every specialist should have an electroscope to control any possible loss. When radon is used, the electroscope is a must, because we have to know exactly the quantity of emanation before making the application. Measurements should be taken immediately prior to administration.

Calculations for Every Day Use

The units employed in Curie-therapy are: the milligramme for quantity and the millicurie for activity or millicurie destroyed. One milligramme of radium destroys 1/133 of a millicurie per hour.

Knowing those preliminaries it is easy to calculate the millicuries destroyed in one radium application.

For instance: if the Radiumtherapist applied 6 needles of 2 milligrammes, and 4 needles of 1 milligramme, the total applied will be 16 milligrammes.

Knowing that one milligramme destroys 1/133 millicuries per hour you will have, in this case, 16/133 millicuries destroyed per hour.

If the prescribed dose is 8 millicuries destroyed it is easy to determine the length of time of application. 16/133 millicuries are destroyed in one hour, 8 millicuries will be destroyed in X hours.

So 1 hour multiplied by 8 millicuries and divided by 16/133 of miillicuries equal 66½ hours of application.

To simplify: we take the dose prescribed which we multiply by 133 and the result is divided by the quantity of radium in milligrammes contained in the needles.

Then: time (T) equals dose (D) x by 133 and divided by quantity in milligrammes (Q)

$$T = \frac{D \times 133}{Q}$$

The quantity destroyed in tubes can be calculated in the same fashion.

At the Institut du Radium we have tubes that facilitate calculation because they are of 13.3 milligrammes which gives us a destruction of 1/10 millicurie per hour. A 13.3 milligramme tube applied during 24 hours will give us 2.4 millicuries destroyed. Two tubes, 4.8 etc. Other tubes have but half the quantity of radium, such as 6.6 milligrammes and it is evident that they will give 1/20 millicuries destroyed per hour.

For radon, it is a little more complicated; the emanation is diminishing hourly and retains but half its original strength four days later (3.82).

It is very important to know precisely the quantity of emanation at the beginning and at the end of the application in order to determine the quantity of millicuries destroyed during the treatment.

Fortunately tables to this effect have been prepared and give us the hourly and daily loss thus simpliffying operation.

Apparatus

The various pieces of apparatus employed are: needles, tubes, sounds, corks, colpostats, moulages, seeds and the radium bomb.

NEEDLES: Made of platinum or of an alloy of gold and platinum. The centre is hollow and large enough to introduce the capillary glass containing radium. The walls are .5 mm. thick and are used to filter radiations. One end is sharp to

allow their implantation in tissues; the other has a needle-eye in order that a thread may be passed through, thus facilitating their holding in good position during treatment and their extraction when the treatment is completed. Their length varies from 1.5 to 2.5 centimeters according to the size of lesions to be treated. Their charge is normally 1, 2 or 3 milligrammes of radium. This method of treatment is called radium puncture.

TUBES: These have a platinum wall of 1.5 millimeters in thickness for filtration purposes. In the hollow centre radium or radon is enclosed. Those containing radium element are sealed, others containing radon have screwed tops. As previously mentioned, tubes at the Institut du Radium have 13.3 or 6.6 milligrammes of radium element in order to facilitate calculations because these tubes destroyed either 1/10 or 1/20 millicuries per hour.

In other centres different charges are used such as 5, 10, 15 milligrammes, etc. . . .; Calculation is always the same, knowing that one milligramme of radium destroys 1/133 millicurie per hour.

Sounds

Made of oiled silk or of non-metallic rubber containing 1, 2 or 3 radium tubes. One end is round to facilitate their introduction in cavities. A string attached to the other end facilitates their removal.

Corks

Usually 2 centimeters thick and one tube of radium is introduced in their centre. The open end is closed with a small cork; they are waterproofed with collodion. A string is again attached to facilitate removal.

Colpostats

Made of two corks linked together by a flexible shaft of about 8 centimeters in length. The flexible shaft exerts a little pressure on the corks and maintains them in position during application on the cervix.

Moulages

These are made with "Colombia" paste which is composed of sawdust, parafine and beeswax. "Colombia" paste has the advantage that once heated it is easily moulded and retains its shape at ordinary temperatures. Moulages are shaped on the treated region. The distance prescribed by the Therapeutist governs the thickness. Once the mould is cooled and finished, grooves are traced with a hot iron on the external side and radium or radon tubes are sealed in.

Seeds

Gold capillary tubes or capsules containing radon. They are inserted in tissues where they remain permanently.

Telecurie Therapy

The radium bomb is another method of external application. Here radium is used at a greater distance just like x-ray tubes in radiotherapy. It necessitates a quantity of 2 to 5 grammes of radium.

Filtration must be very high and the focal-skin distance must be at least 10 centimeters for filtration purposes also.

This method is very expensive and is used only by very fortunate institutions.

Precautions to be Taken for the Protection of the Technician

The technician detailed for the extraction of radon or the preparation of various apparatus for the application of radium must be protected from radiation capable of giving him local or general lesions.

(a) Local Lesions

These result from the direct action of radiation on most exposed parts such as

fingers and hands; they are responsible for local radiodermatitis.

(b) General Lesions

Consist mostly of an anemia characterized by a more or less altered blood picture.

In order to prevent these accidents the technician must be well protected and he must have his blood formula verified every three months. Every move or necessary manipulation in the preparation of an apparatus must be done only with the use of distancing instruments, e.g., long forceps to handle or prepare tubes, etc.

If the operator works in front of a table, the latter must be covered with at least 2 or 3 cms of lead, with a vertical screen of the same metal, extended by another screen of lead glass slanted over the table. The technician must stand behind this lead protected working bench to prepare apparatus.

For the transportation of radium a metal box lined with 4 to 5 cms of lead should be used. A sufficiently long handle will protect the hand.

In the application of moulages with bandages, technicians should never handle moulages by holding them on their active side; they should hold them with care or ask the patient to co-operate in holding them in the proper place.

When not in use, radioactive apparatus must be kept in leaded containers. Finally, it is a "must" to always keep away from any source of radiation, bearing in mind the following law: "The intensity of radiation is in inverse proportion with the square of the distance." Lesions caused by Gamma rays and x-rays are insidious; this is why every possible precaution must be taken.

Precautions to be Taken for the Patient

If the technician must protect himself he must also protect his patient. He must see that the prescription of the radiotherapeutist is scrupulously carried out, filtration, distance, dressings, etc.; that apparatus are well maintained and that adequate protection be given to regions not to be treated. For example, in the treatment of a submaxillary region, protection must be given to the shoulder. Finally, doses must be calculated exactly so that the patient receives the exact prescribed dose.

Effect of Radiation of Films

Gamma rays affect photographic films according to the strength of the source of radiation, and the time of exposure. Consequently, a technician requested to radiograph a patient bearing a certain quantity of radium, must act quickly before the Gamma rays affect the film by secondary fog, rendering it unreadable.

For example, in taking a pelvic radiograph of a patient having 30 to 50 milligrammes of radium in the womb or vagina, the first thing to do is to fix the technical factors, centre the tube, and finally, place the cassette under the pelvis, expose the film and remove the cassette away from all source of radiation as quickly as possible.

If the x-ray apparatus is powerful enough, a very short film exposure time should be used.

Radiography of the G. U. Tract

from the Urologist's Standpoint

By F. D. CONROY, M.D.

Edmonton, Alberta*

I PROPOSE to deal with x-ray from a urologist's viewpoint. I certainly do not pretend to know much about roentgenology but I hope I may be of some help to you in bringing forth a few practical points related to my specialty.

Apparatus

There is no special x-ray equipment needed although a regular cystoscopy table is preferable for retrograde pyelograms. The 14 x 17 films are used in order to include the symphysis pubis and lower two or three ribs. I wish to mention here the handling of the patient for cystoscopy. If under local the patient is generaly well sedated. These patients are not as alert as are those in the x-ray department and you must speak loudly to them and rehearse before taking a picture, sometimes holding of the nose and mouth helps. In retrograde films the exposure is usually long because mostly we have low-power generators on these tables, therefore watching for movement is very important.

Preparation of Patient

The technician should examine the patient before the pictures are taken for things that might give a shadow suggesting calculus on the film, e.g. buttons, medals, adhesive, skin warts, etc. I might mention at this time that artefacts on cassettes may cause similar trouble. As far as medical preparation is concerned there are roughly three schools of thought:—

1. There is no medication given at all and no enema.

2. A laxative is given the evening before, e.g. castor oil, licorice powder.

3. This school would give the shotgun preparation, i.e. laxative, h.s., enema in the morning plus pitressin on call.

All agree that if possible the patient should be up and about previous to examination. I agree that often patients off the street have very little gas while patients prepared by laxatives, enemas, etc., often have plenty. There is the matter of bed patients forming gas, poorly given enemas, etc. There is also the question of the underlying urinary tract condition. It is well known that urinary tract infections and obstructions tend to cause flatulence reflexly. Sometimes these patients cannot be cleaned out by any method and with the permission of the attending physician or the radiologist in charge the films should be taken even in the presence of gas.

I wish to mention here the reasons for and against giving pitressin in these cases. Pitressin acts on the bowel to help expel the gas and also causes the urine excreted by the kidney to concentrate. For both these reasons it helps to give good intravenous pylegrom films. It is dangerous to use routinely as in some conditions it is contraindicated, e.g. coronary heart disease, therefore should only be ordered by a physician or intern.

It is not your business to order the preparation but if it is not satisfactory you should know so and report same.

*Presented at the Convention of the Alberta Division, C.S.R.T., held at Edmonton, June 2nd-4th, 1950.

RADIOGRAPHY OF THE G. U. TRACT

In this paper I will confine myself to: 1. Plain film or K.U.B. 2. Intravenous pyelogram. 3. Retrograde pyelogram. 4. Cystogram.

Flat Plate

I believe the flat plate should precede all x-ray examinations, even gall bladder and barium x-rays, although this would be very inconvenient in some cases. I also believe all technicians should be made to take flat plates of the abdomen for a month before they are allowed to do any other abdominal films because, if one can take a plain film well, varying the technique for the intravenous pyelogram, etc., is simple. Examine the flat plate before any more films are taken.

History of patient having been given barium by mouth or rectum should always be sought, as some of these patients retain barium in the bowel for many days after an examination.

The renal shadows should be well outlined. Notice that on pleasingly plump people they often show better due to the perirenal fat. If the renal shadows have calculi or calcification, an oblique or lateral film may be needed to differentiate same from gall stones or calcified mesenteric nodes. If the patient is having pyelograms as well, these off-centre films can be done with the pyelogram rather than the plain film.

The path of the ureter from the kidney to the bladder should be scanned for calculi. The commonest red herrings in the upper two-thirds are calcified mesenteric nodes and in the lower one-third phleboliths. If any of these are present, the oblique should be taken in the pyelogram with the patient turned to the side of the calcific density. The easiest method is to put a sandbag under the opposite hip and shoulder. The bladder and prostatic area should also be examined for calculi. The psoas shadows should show clearly when normal and they should be looked for. The commonest condition in which one or the other is obliterated is perinephritic abscess.

As far as the bones are concerned the technique for the urinary tract is not the best for bones. Nevertheless they should be inspected in case there should be any obvious disease, in which a case a film with different technique might be taken, e.g. metastases from carcinoma of the prostrate.

Intravenous Pyelogram

Patients for intravenous pyelogram are usually fasting for twelve hours preceding the examination besides the various methods of medical preparation. The average case is given 20 c.c. of a 35% solution of iodide preparation (e.g. Diodrast intravenously. Although this is generally done by a medical man, in isolated cases the technicians may be giving the dye themselves with a medical man in attendance. It is well to know that this dosage should be varied even for adults, and in some large patients should be increased up to 30 c.c. if good films are to be expected. Remember this is a physiological test and only incidentally an anatomical picture.

There are the following dangers in the use of this drug:—

1. Some people have an idiosyncrasy to iodide. Adrenalin should always be on hand. If this drug is given by a technician a physician should be available in case of trouble.

2. Patients with poor renal function should not be given an intravenous of iodide preparation as it may increase the

load on these kidneys. I will admit that the newer drugs that are being used now have a very low toxicity and I doubt if there is very much danger in these cases. Nevertheless if the patient is known to have a poor renal function there is no reason to do an intravenous pyelogram anyway as there will be very little, if any, dye excreted.

Do not forget to follow these films and examine each one before the next is taken. Just because your hospital routine states the film should be taken at certain intervals, e.g. 5, 15, 30 minutes, there is no reason why you should not use individual variations.

In regard to the hour film, if one kidney shows up well and the other does not, continue and take an hour film. Also, if neither show up well and there is not much dye in the bladder a later film may show up bilateral hydronephrosis.

A standing or bearing-down film should routinely be done at 15 minutes. In this way certain conditions may be picked up, e.g. nephroptosis, fixed kidney from infection or tumor, or a differential diagnosis between renal calculi and extraneous calcifications may be made.

Nephrogram is a word that has been coined to denote the exaggerated renal shadow often seen in acute block, e.g. with renal colic due to stone. Often there is no dye seen in the pelvis or ureter.

Pressure from balloon belts, etc., in order to cause filing up of the pelvis and ureters is mentioned only to be condemned, and only seems to confuse the reader of the film. This throws a monkey wrench into the physiological portion of the test, for, remember that the intravenous pyelogram gives us a good assessment of renal function and is used often, e.g. in prostatism, mainly for that purpose.

The final film should be centred over the bladder for the cystogram. The patient should not void during an intravenous pyelogram unless absolutely necessary, otherwise no cystogram will be obtained.

Retrograde Pyelograms

In these cases urologists will be in attendance and there will not be so much onus on the technician. As you know, in cystoscopy radiopaque catheters are introduced up the ureters and following the taking of a plain film a few c.c.'s of sodium iodide are injected into either renal pelvis and a further film taken. In contradistinction to the intravenous pyelogram this is an anatomical picture. All the above mentioned rules for the plain film and intravenous pyelogram will apply here. The oblique film to rule out urinary tract calculi is more valuable here than in the intravenous pyelogram. Aside from technique, the films may be poor because no dye is visible in the pelves. Water may have been used by mistake. The 4% sodium iodide used for cystoscopy may have been used in error or obstruction may have caused the dye to run back down the ureter on one or both sides.

There may be pyelovenous backflow into the renal parenchyma from too much pressure on injection or the presence of a diseased kidney.

If it is impractical because of the table or condition of the patient to do a standing film here, range of motion of kidneys can be ascertained well by having the patient take a deep breath and then bear down as though moving the bowels. This also applies to the intravenous pyelogram standing film.

Cystogram

If this is to be done independently of the intravenous pyelogram, after taking a plain film, the bladder is filled via urethral catheter with 4 to 8% sodium iodide. The plain film should include the whole tract not just the bladder. If there is a suggestion of diverticula an oblique film and one with the bladder only partially filled will be of value. In the differential between the vesical calculi and calcified ovaries, etc., a lateral film may be of value.

Conclusion

There are more mistakes made in medicine by not looking than by not knowing and this is especially true of x-ray work.

To recapitulate:—

1. In all films make sure there is not too much gas or barium and the technique is good.

2. In the flat plate look for renal and psoas shadows and any extraneous shadows along the urinary tract and from this guide yourself as to technique in further films.

3. In taking intravenous pyelograms remember it is primarily a physiological test and only incidentally an anatomical picture. Follow each film before taking the next film and if necessary take an hour film.

4. Although the urologist is usually present for the retrograde pyelograms remember it is better to leave the catheters in until you see the films. It is primarily an anatomical picture and here oblique films to rule out stones are valuable. Instead of a standing film, one on deep inspiration will show range of motion.

Remember, all men who read x-ray films are at the mercy of the technician. We can only be good if you are—don't let us down!

Winnipeg—the 1951 Convention City

NINTH GENERAL CONVENTION C.S.R.T.

ROYAL ALEXANDRA HOTEL

September 12, 13, 14, 15

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Silicosis and the Importance of Standardized Radiographic Technique

By E. DONALDA CAMPBELL, R.T.
Montreal

PULMONARY disease of occupational origin is defined as those cases of lung disease which arise out of a person's work. These can be of two general types:

(a) Acute.

(b) Chronic. Usually fibrosing in character.

The acute type is usually a chemical pneumonitis of varying degrees of severity, depending on the concentration of gas or fume and the length of time during which it acts.

The chronic form may be of a limitedly progressive nature, that is, process will continue for some time after exposure has ceased.

Because of the limitation of space and the vastness of subject only Silicosis will be considered in this paper.

Silicosis is the oldest specific occupational disease and was first observed at the time of the destruction of the second temple in Jerusalem by the Romans and was called Grinder's rot. A stone cutter's lung was sectioned and the blade of the knife felt as though it was cutting through sandpaper.

Silicosis is a disease caused by the inhalation of finely divided silicon dioxide or silica and since this appears widely in nature and enters into so many industrial processes, it is not unexpected that its effect should be quite widespread.

Nothing was done about it until the year 1915 and the Silicotic Act came into being in 1935.

In order to appreciate what is required in an x-ray film of the chest when a diagnosis of silicosis may be made, it is necessary to consider very briefly the anatomical changes induced in the lungs and correlate these with the x-ray pictures.

It is to be remembered that the lung, which is a very satisfactory mechanism for the removal of dust particles, has limitations and it is possible with overwhelming amounts of any dust to have a complete breakdown of the dust removal system. This, however, is not the problem to be discussed, but rather that specific problem caused by the action of silica in amounts which would under ordinary conditions not be expected to lead to any breakdown of the dust removal mechanism.

When finely divided dust particules, that is those less than five microns in size, are inhaled they will reach the alveoli. Here they are removed by phagocytic cells and are carried into the pulmonary lymphatic channels.

On the other hand, quartz Silica, or Silica dioxide, leads to a toxic action, (1) on Phagocytes. (2) On surrounding lung tissue cells, be they interstitial or parenchymal.

These changes which are thus brought about are not rapid in onset nor are they uniform from person to person. People having exposures to equal dust concentrations will show marked variation in the time of development of the disease and its progression.

Since the Silica particles are removed by the lymphatic channels in the lung and are almost entirely drained into the hilar lymph glands, one would expect the concentration of Silica in the lung to reach its highest point in these glands. Furthermore, the irritation so set up in the lymphatic glands would be expected to be greater than when there was a lesser

amount of Silica. For that reason enlarged and increased density of hilar shadows is often noted earlier.

Furthermore, since there is considerable concentration of particles in the lymphatic channels, the initial effect is expressed first of all by an increase in the peribronchial and perivascular channel markings. This will result in increasing the density of the bronchial vascular pattern.

As the irritative process progresses, greater areas are replaced with fibrous tissue and thus disablement results.

(3) In the early stages of Silicosis it is impossible to distinguish a specific pulmonary pattern for this disease and the radiograph may show nothing more than increased broncho-vascular markings. Similar markings may appear in chronic bronchitis and in older personnel who have had no abnormal dust exposure.

The characteristic anatomical alteration is the so-called Silicotic nodule. This represents an area of fibrosis which reaches a size not in excess of five or six millimetres surrounding a particle or particles, of Silica and is a necessary finding for a diagnosis of Silicosis.

Silicosis is a progressive disease and if enough Silica has been inhaled to initiate nodule formation each focus continues to enlarge until finally a state of equilibrium is reached. Nodules which may not be visible by x-ray when a man leaves a Silica industry may subsequently increase in size so that they are readily detectable some years later. The progress of Fibrosis may be completely altered by infection, especially tuberculosis and it has been found that persons having Silicosis are prone to develop tuberculosis.

If such an occupational disease is to be eliminated from industry, several steps have to be taken. One of the most important is that of x-ray control and this is done for three reasons:

(1) To prevent someone with Silicosis from entering another industry where his condition could be aggravated.

(2) To see if there is anyone working, who in spite of protective measures may be developing Silicosis.

(3) To protect persons who might have Silicosis from being infected with tuberculosis from old employees or those recently hired.

It is, therefore, necessary in any industry where a Silicosis hazard exists to control tuberculosis carefully.

Purpose of first is obvious—second is necessary in order to find cases which may at a later date become full-blown occupational disease if they are not removed from this occupation at the earliest possible moment, and third—most important to help discover any new employees entering such an industry with active tuberculosis and to detect at an early stage, tuberculosis within the working population itself, thus removing them before they can spread the disease to others.

It is obvious from what has been said before that repeated films are taken on the same individual over the course of many years.

Since minor changes are sought, it is obvious that a standardized technique is essential in order that satisfactory comparisons can be made in a series of films. This is the point at which Radiographers must exercise their greatest skill in order that the Radiologist receives films of absolutely uniform quality.

If films vary because of exposure, development, etc., a real comparison cannot be made and for all practical purposes such a series is useless.

One method of obtaining uniformity has been through use of the Photo-electric Timer. This is a device whereby the exposure is controlled by the brilliance of a fluorescent screen.

Small Intestine Study—Rapid Method

By DOUGLAS PENLEY, R.T.
Regina, Sask.*

IN the roentgenological examination of the small intestine, the procedure is to show the entire length of the jejunum and ileum for the investigation of their contours and movements.

The only satisfactory radiopaque is Barium Suflate, but due to the sensitivity of the small intestine and possible allergic reactions, preparations made of sweetened or flavored Barium Sulfate and ordinary water are not recommended. A mixture of Barium Sulfate and distilled water has been one of the more common meals in use for study of the small intestine, but the most desirable method uses a normal saline solution made with distilled water which relieves the stomach and duodenum of the task of making the hypotonic distilled water into an isotonic solution.

As you are well aware the roentgenologic examination of the small intestine is a time-consuming procedure. The usual examination requires a film every half-hour for five or six hours, as well as a number of spot films, fluoroscopy three or four times, and restriction of food to the patient extending at least four or five hours.

In an attempt to devise a practical method of examining the small intestine, Doctors S. Weintraub and R. G. Williams, New York Hospital, New York City, made use of the fact that ingestion of an iced drink decreased the transit time of the small intestine. By use of this fact, coupled with knowledge that Barium Sulfate normal saline mixture also passes more readily through the small intestine, they devised a technic whereby the head of the Barium meal had reached the caecum in one hour or less in 90% of 87 normal patients. The mucosal pattern in all was as good or better than that obtained by routine examination, and there seemed to be more complete filling of the entire small intestine. In pathological cases the rate of transit was also accelerated without sacrificing the appearance of lesions. There was the usual relative delay in transity in disordered motor function patterns.

The technic is as follows:—

The usual examination of the upper gastro-intestinal tract is done, using 4 oz. barium and 4 oz. isotonic normal saline at room temperature. Following this the patient drinks 8 oz. of ice-cold normal saline. Five minutes later a film is taken of the abdomen, then the patient drinks a second 8 oz. of ice-cold normal saline. Interval films are taken at fifteen and thirty minutes after drinking of the first cold saline. These films are developed and viewed immediately, the patient is examined by fluoroscope and spot films are taken of suspicious areas. Interval films are taken at half-hour intervals until the head of the column has reached the caecum. Fluoroscopy and spot filming are done as indicated.

Under the instruction of Dr. G. McPhee, Radiologist, the Grey Nuns' Hospital X-Ray department has been using this technic.

As well as the favorable comments from both medical and patient viewpoint, the rapid method of roentgenological study of the small intestine is in high regard by the technicians for this method aids considerably in clearing the work through the department.

*Presented at the 1950 Convention, Saskatchewan Society of X-Ray Technicians.

Spot Films of the Facial Bones by Means of the Fluoroscopic Tube

By S. G. JOHNSTON, R.T.
General Hospital, Moose Jaw, Sask.

WHEN the patient has sustained fractures of the extremities, ribs and possibly other regions of the body, satisfactory films of the facial bones are difficult to obtain.

Needless to say the less moving and turning such patients receive the better.

We have had some fair results with patients such as these by utilizing the fluoroscopic spot-film device. I will not go so far as to say that these radiographs are of the same quality as those obtained in the routine manner, but diagnostic films may be made without too much discomfort to the patient, giving the surgeon a fair idea of the extent of the injuries to the facial bones. The patient is placed on the radiographic table in the supine position. The fluoroscope is used for centering, preferably by the Radiologist, making sure that the shutters are open wide and the tube carriage locked in position.

This procedure must be done quickly to minimize the skin dose, bearing in mind that the focal skin distance is quite short.

Wooden blocks are placed on each side of the patient's head, a stationary grid comes next, then the cassette, film face down, marked right or left.

As the fluoroscopic tube is a fixture, the angles must be made by the patient's head. If there are no injuries to the cervical region the head may be thrown back or brought forward to obtain the various positions. Should there be suspected fractures of the cervical spine extension and flexion should not be attempted.

Films taken with the head turned five to ten degrees to the right or left will give much information to the Radiologist.

Modified views of the Law, Caldwell, Titterington positions can be made in reverse.

Presuming that skyline views of the zygomatic arches, of the occipital region and routine laterals have been made, films with the fluoroscopic tube will make for a more complete examination without too much delay to the attending physician.

This short paper could be illustrated with reproductions of films made in this manner, but you will derive much more satisfaction from giving your Radiologist good films of the facial bones of the next patient who, through severe injuries, is unable to lie in the prone position.

Effect of Filament Evaporation on Tube Current

By DESMOND R. BUTLER, R.T.
St. Boniface Hospital, St. Boniface, Man.

THE purpose of this paper is to study the effect of filament evaporation on the curent through an x-ray tube in a circuit with semi-automatic controls. This problem arises because the filament current is pre-set only for the selections available on the technic selector, and cannot be adjusted at will by the operator as in the non-automatic units. The extensive use of semi-automatic machines has produced a situation whereby many technicians, using only new equipment, daily change the technic selector, without a thorough knowledge of the underlying principles concerning amperes and milliamperes, and the relation between the two. Let us review the fundamental physics involved.

The basis of x-ray production is the bombardment of a target by electrons, which are emitted from a filament. When the filament is heated to incandescence, the kinetic energy of the atoms and free electrons of which the wire is composed, is increased, so that some of the electrons will leave the filament surface and pass into the surrounding space. Provided the kilovoltage across the tube is sufficient, these electrons will be accelerated towards the anode where their arrest results in x-ray production. The number of electrons produced in this manner depends on the temperature of the wire. This in turn depends on the current in amperes through the wire, and its cross-section area. For example, a filament .0085 inch in diameter having 4 amperes passing through it will be heated to a certain temperature, and give off a certain number of electrons, while a thinner wire of the same material with also 4 amperes through it, will offer more resistance to the current, so that the temperature will be higher and more electrons will be given off. Because the x-ray tube is emission limited, that is, the milliamperage is limited only by the emission from the filament, a small increase in filament temperature will cause a large increase in tube curent (milliamperes). It is not only the evaporation occurring during exposures, but also that which occurs as long as the filament is lit up, that contributes to the increased resistance of the wire.

As electrons are emitted from the filament, it is bound to become thinner gradually, and therefore its resistance increases. Consequently for a given ampere setting, more electrons are emitted, causing an increase in milliamperage. This increase in milliamperage produces a corresponding increase in film density. Because the ampere settings are fixed, the technician is unable to change them to compensate for the increased emission due to filament evaporation. Some compensation, however, does occur because with the increase in milliamperage, there is a drop in kilovoltage across the tube. This, however, is small. Reference to figure 86, Files "Medical Radiographic Technic" (1st edition, 5th printing), indicates that, starting at 65 KvP, there is a drop of about 4 KvP when the milliamperage increases from 100 to 200. Thus the increase in density due to the milliamperage is not compensated for by the associated drop in VvP.

An experiment to study this filament evaporation and increase in milliamperage was carried on for two months, by taking daily baseline readings, using 100 Ma. 65 KvP 3 seconds. Approximately 1,000

other exposures were made with this machine during the same period. It is a 500 Ma. unit used mainly for gastric work and chests. This unit was calibrated about ten months previously, and was correct at that time. The first experimental baseline reading was 108 milliamperes, now after months, the reading is 110 milliamperes. This suggests a milliamperage increase of approximately 10% per year for this unit because of filament evaporation.

From this study I would conclude that all semi-automatic units should be checked at least every 500 exposures, or more frequently if necessary, by baseline readings and readjusted by the service engineer. The necessity of doing this indicates the need for a device incorporated in x-ray units which would automaticaly compensate for filament evaporation. I understand that a stabilizer for this purpose is being included in some of the newer machines on the market.

I wish to thank Dr. F. G. Stuart for help and advice in preparing this paper.

Results of Nov. 1950 Exams, C.S.R.T.

Successful Candidates Eligible for Registration

ALBERTA

Carberry, Hilson
Gainer, Helen Donna
Kennedy, Lois Anne
Konelsky, Stella
McNeil, Theresa
Slipchuk, Phyllis
Tessier, Denise
Tweed, Lois
Van Buuren, Johanna

BRITISH COLUMBIA

Ashwin, Joan
Boudreau, June
Brooks, William G.
Brown, Phillip
Clark, Mei Lin
Connell, Joan Fairley
Dady, Norma A.
Goertzen, Reuben
Kuliak, Olga Lena
Macdonald, Catherine
McNabb, June Dorothy
Monk, Arthur John
Quinn, William E.
Senden, Jean
Watkins, E. Mary
Westover, Elaine
White, Dorothy
Wilson, L. Corinne

MANITOBA

Bailey, Evelyn Ruth
Butler, Desmond Roger
Courchaine, Isabelle Cora
Deacon, Sheila Joan
Drummond, James H.
Haughton, Joan Elizabeth
Sister St. Kyran
Solvason, Hugh B.
Strand, Gustave Kyle
West, Vivian Joyce

NEW BRUNSWICK

Craft, Elizabeth Anne
Gautreau, Carmella Eloise
O'Sullivan, Gertrude
Stevens, Virginia

NOVA SCOTIA

Aucoin, Lorraine
Boyce, Betty
MacCallum, Mabel
MacDonald, Yvonne Marie
McLean, Joan
Walsh, Carmelita

ONTARIO

Anderson, Donald Joseph
Bevens, Margaret
Burns, William R.
Cockburn, Margaret
Dawson, Dora
Eamer, Norma
Sister Jean-Philippe
Lee, Norman Sydney
Lett, Dorothy E.
McDivitt, Betty
Musgrove, Gladys
Robley, Shirley Marguerite
Sinclair, Darlene

QUEBEC

Bryson, Janet Agnes
Deschamps, Marguerite
Hargreaves, Margaret E.
Horne, Christine
Jobin, Ardien
Nueman, Mona
Picard, Camil
Plant, Beryl
Rowe, Phyllis
Schneiderman, Bonny
Sister St. Berenice
Sister St. Emile
Steel, Emily
Turgeon, Josette
Wilkinson, George

SASKATCHEWAN

Archer, Ivy Joyce
Boryski, Edward A.
Grimes, Patricia
Hildebrand, Wilfrid
Liston, Marion
Pawliuk, Zenon
Symon, Doreen Alice

Foetal Frolics

By A. ELIZABETH MADDEN

Queen Charlotte's Hospital, London, Eng.

Reprinted by permission from *Radiography*, England.

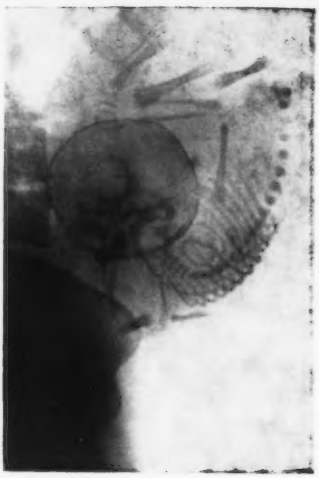
1—This matter of getting born is something I often sit and think about for hours and hours on end.

2—Of course I know that all good fœtuses behave according to the beautiful drawings they put in obstetric text-books and fold their arms and legs very neatly and tuck their chins on their chests. But I find this extremely dull so I have a round or two of exercise occasionally.

3—My Mum goes to a place called the Physiotherapy Department and gives me no end of a shake-up, so when she settles down for a rest I get a bit of my own back. I just wake myself up slowly, yawn—

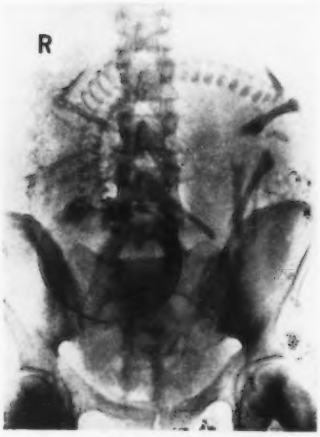
4—Stretch—

5—Elbow my way around a bit—



6—Swing gently round until my feet are down in Mum's pelvis—

8—A good sharp battering motion with feet and hands will get me in trim—



7—And then I'm ready to start.

9—Then a jet propulsion from side to side never fails to liven Mum up—

10—And just to convince her that I'm still alive I whizz round and round like this—

11—Until I'm feeling thoroughly sick—

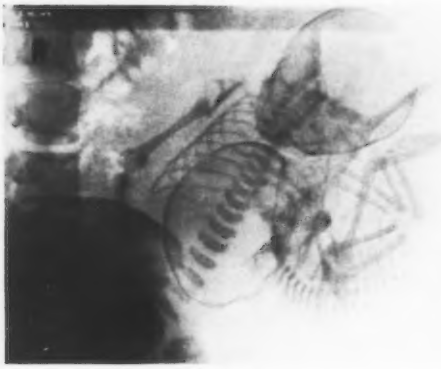
12—Or quite flattened out.

13—After that performance I settle down to a nice quiet rest like my Dad does on Sundays after dinner. This is an attitude I can strongly recommend to any fellow fœtus.

14—I often wish I had a baby brother to play with. You can have such fun with one. You can lay down the law to him and argue till he doesn't know if he's on his head or his heels—

15—Play leap-frog together—

16—And go for a bicycle ride—



17—And when the day comes to be born you can have a rare old time getting baby brother out of the way so as to get the first look at the great big world.

18—My Mum says there's nothing to beat early training so she has taught me to wash my face and the back of my neck.

19—And to comb my hair—no wonder they say that we babies are grown up before we're born!

X-Ray Protection

By J. E. KENNEDY

Associate Professor of Physics, University of New Brunswick, and
Consultant Physicist to Department of Health and Social Services,
Province of New Brunswick

WORKERS in an x-ray department should be fully acquainted with the dangers associated with exposure to x-rays, and be provided with adequate protection against the radiation during all operations of the equipment.

The working conditions for the personnel in a department are the responsibility of the radiologist in charge. This means in effect, that the doctor must have knowledge of the amount of direct or scattered radiation at all positions surrounding each x-ray installation while operated at maximum output, since the most serious hazard for personnel is then encountered. Such information can be obtained from a detailed radiation survey of the complete installation. The danger areas can be located and, where necessary, corrections made to eliminate them.

The health of the personnel should be checked periodically by the appropriate medical and clinical tests. The interval between such examinations should depend upon the amount of radiation received by each individual. The measurement of radiation is obtained from a system of monitoring. Monitoring is carried out either by a "fountain pen" type of ionization chamber, commonly designated as a pocket dosimeter, or by the use of photographic film, referred to as a "film badge."

The pocket dosimeter most commonly used, has a scale and fibre which can be viewed directly with the eye by pointing the chamber at a brightly illuminated surface. The scale is calibrated in milliroentgens. By inserting the end of the chamber into the charging unit, the fibre can be brought to the zero position. The amount of radiation received by the dosimeter during the test can then be read at any later time by observing the position of thef fibre on the scale. This dosimeter gives a convenient "on-the-spot" check for the radiation received during any particular operation. A technician can also determine at intervals whether the permissible daily tolerance of fifty milliroentgens is being approached. In another model of this type of dosimeter, the reading can only be obtained by returning the chamber to the charging unit. This prevents the individual from knowing the amount of radiation taken in any period and may in some instances be an advantage. The pocket dosimeters are normally looked after by the head technician, charged and issued to the personnel at the start of each day, collected and the readings recorded at the termination of each day. The radiologist can then determine from the records the frequency with which the technicians should rotate at the various operations of fluoroscopy, radiography and therapy. In this way over a period of a month, all personnel would receive approximately the same total dosage.

The film badge, on the other hand, is a convenient method for obtaining an integrated result over a certain period. This period is most commonly selected to coincide with the working week. The badge is carried in a metallic holder which can be pinned to the technician's uniform either at breast pocket or preferably waist level.

The calibration, processing and interpretation of the films constitutes a rather complex series of operations, all of which must be carried out under controlled conditions to arrive at the correct result. For convenience and to avoid duplication of costly equipment, this service will be available at a centralized laboratory, which is presently being equipped and organized by the Department of National Health and Welfare in Ottawa. The centralization of records from the films badge service, permits a comparison to be made of the various x-ray departments doing comparable amounts of work. Hospitals where protection problems receive little attention will soon be detected and advice offered in eliminating their hazards. A radiologist should view with a measure of satisfaction, weekly reports from film badge service showing his entire staff well within the permissible limits of dosage.

Monitoring of personnel is now being introduced by a number of x-ray departments. It might be claimed that during recent years, radiologists have become very "protection-conscious." This may be directly attributed to the fact that a better understanding of the effects which result from exposure to x-rays has been reached. In carrying out their duties in any department, x-ray technicians are justified in requesting adequate protective measures coupled with an approved system of monitoring.

Philadelphia—General Electric Co. recently disclosed production of an x-ray microscope that can show the inside of things through which light cannot pass.

In other words, it can look into a bar of steel or a bar of candy.

The new instrument was shown for the first time at a meeting of the American Society for X-ray and Electron Diffraction.

Charlys M. Lucht of the G.E. research laboratory told the group the x-ray microscope was still in the laboratory stage of development.

But Miss Lucht pointed out it might result in much sharper images and higher magnifications than were possible using visible light.

"The instrument may compete with electron microscopes in the future," she said.

Electron microscopes now are the most powerful magnifying instruments in use. These use a beam of electrons rather than light to form an image of materials under study.

Miss Lucht said the x-ray microscope does not need to be used in a vacuum like the electron microscope.

"Because of this advantage," she said, "it may be possible to examine living materials at much higher magnifications than ever before."

She reported that clear, sharp x-ray images, magnified 10 times had been produced in the laboratory, and these images had been magnified 10 times further by photographic enlargement without serious loss of detail.

The microscope operates on the principle that x-rays can be reflected from polished surfaces, as can visible light, provided that the rays strike the surfaces at very small angles.

The instrument consists of an x-ray tube and a pair of curved mirrors. The x-rays strike the mirrors at an angle of less than one-half degree. The mirrors bend the beams in such a way as to cast a magnified x-ray image of the sample on a photographic film.

The Importance of a Technic Based on Patient Thickness in Chest Radiography

By DENISE TURENNE
St. Boniface Hospital

THERE are two things to be desired in chest radiography: 1. That all films be of a standard uniform density. 2. That all successive films on any one individual be of a constant density.

The first requirement is necessary in order that the Radiologist will become accustomed to a standard density. This makes it easier for him to determine the meaning of different densities in disease conditions. The second requirement is essential so that the shadows in the lung in any particular patient can be compared and significant changes determined. This is most important in tuberculosis.

In radiography of the extremities it is common to set up one technic for each part. This with minor variations can be used for most patients. Such wide latitude is made possible because of the marked inherent contrast of the bones, which are our main concern in extremities.

In the chest, however, our main concern is with soft tissue densities, so the range of latitude is restricted. We must therefore seek a finer control of our technic. The well known characteristic of x-ray absorption in proportion to tissue thickness is a logical basis. Therefore it has become customary to measure the A.P. diameter of the chest and vary the kilovoltage according to the measurement obtained.

There are two ways of measuring tissue thickness. One is to estimate by eye. This is a sort of guessing which, however, becomes fairly accurate with long experience. The other is to use calipers. The latter is probably the better and of course is essential for students.

As an experiment, three technicians were asked to estimate by eye the thickness of a patient and to make films using the Kv.P. they thought would be correct. They selected 60, 62 and 64 Kv.P. The three films were developed simultaneously. A definite difference in their density, although not marked, was evident.

Then the same three technicians using a caliper measured the patient, two obtained 21 cms and the third 19 cms. This difference might be considered an objection to a measurement technic. It must be admitted that all technicians will not obtain the same measurement on a given patient. The amount of difference can be minimized however, by the adoption of a uniform measuring technic throughout the department. At least by measuring the chest everybody keeps pretty close to the "straight and narrow" path whereas if they estimate by eye there is a chance of getting "away off". This is especially important in departments where students are in training.

In successive films on one individual the first measurement should be the one used as the basis for later films so that the same Kv.P. will be used each time the patient is x-rayed.

The nipple level in males and the top of the breast in females with respiration suspended are suggested levels for measuring. The hand is held on top of

the head with the elbow pointing forward.

This question now arises. Will our density always be constant if we measure the chest? The answer is no. First of all the build of the patient will have some effect. We might have a stout and a lean patient, both of whom measure, say 20 cm A.P. If we use the Kv.P. according to our chart, the stout patient's film will be lighter than average and the lean patient's darker than average. This is corrected as we gain experience and learn to vary our average technic for these special types of patients. Perhaps about 75% of the people fall into the average classification, so we can expect standard density in this number.

Other factors which might spoil our results are poor darkroom technic, and poorly calibrated equipment.

The value of measurement is most noticeable in serial films of a particular patient. If we measure him the first time and use the corresponding Kv.P. for each successive film our density will be uniform, although all the films of the series may be a little lighter or darker than average, depending on the patient's build and the measuring technic of the original technician. In other words, if the same little error is made on all films of that patient it will not be important and comparison will be made easy.

CALLING EINSTEIN

A note left in the X-Ray Department by an intern:

Dear Jack:

This film is number 11380 but it bears the number 11376.

There is also another film (the last or the last but one in the bin) which bears the number 11376, but it should be 11379.

You will see how this mistake came about. When I took 11379 I put the 9 upside down and then I forgot to change it for 11380.

You will have no trouble straightening this out unless it be that the real 11376 is still undeveloped.

H. W. L.

Fourteenth Mid-Winter Meeting

Canadian Association of Radiologists

By PERCY GHENT

Editor, C.I.L. Canadian X-Ray News Letter

Niagara Falls, Ontario, January 4-5-6, 1951

WITH the dawn of 1951, scores of medical specialists assembled at Niagara Falls, Ontario, for the 14th Mid-Winter Meeting of the Canadian Association of Radiologists. French and English-speaking members they were and Canada from coast to coast was represented. Comradeship born of a common, crusading zeal in the campaign against disease was everywhere apparent. Many highly technical papers were presented and the majority of them dealt with the problems and progress of radiotherapy.

One that impressed us deeply was by Dr. Jean Bouchard of Montreal's Royal Victoria Hospital. It was a hopeful message about the treatment of cancer of the breast; treatment continued courageously even when the disease had spread to bone and soft tissues of the body in its secondary manifestations. In a slide-illustrated series of cases from his own experience, Dr. Bouchard demonstrated that with relatively small doses of x-ray treatment, and with proper care, advanced cases of breast cancer can be controlled to the extent of prolonging survival for a number of years and with much healing of bone and soft tissue invasion.

During his paper on Problems in Radiation Therapy, presented in Buffalo, Dr. Walter T. Murphy of that city, also had good news about advanced breast cancer for his fellow-radiologists of Canada: "Breast cancer which has spread to bones, lymphnodes or contiguous chest wall may be controlled for years by irradiation. To-day, such treatment may be judiciously combined with male and female sex hormones to give almost miraculous results." So said Dr. Murphy, from wide experience.

Many Deaths are Preventable

On the subject of Cancer Mortality Trends, Dr. Norman A. McCormick of Windsor, Ontario, said that cancer continues to be a common cause of death, yet: "No clinician working with large groups of cancer cases can fail to be convinced of the fact that many of these deaths are preventable. I see, regularly, more than 300 healthy, living people who were treated for lethal major cancers, five, ten and fifteen years ago." Two factors retarding greater progress in the campaign against cancer, he added, are (1) that 25 per cent. of them occur in sites difficult to recognize or treat early enough, and (2) patients who fail to heed or report symptoms, with consequent delay in treatment. In both instances there was gradual progress toward better things.

Not all tumors are malignant. Among them, Eighth Nerve tumors, a common cause of deafness. Radiographs of the skull can detect approximately 80% of these, said Dr. D. G. Wollin of Toronto General Hospital. Remaining tumors of the same group, he continued, can be diagnosed with further x-ray studies, particularly with the assistance of ventriculography or encephalography. Since such tumors are not cancerous and can be treated surgically, their diagnosis is of supreme importance. Dr. Owen Miller

reported on the results in the use of male and female sex hormones for the past 2½ years at the Ontario Institute of Radiotherapy, Toronto General Hospital.

Human Heart in Action

Watching the heart beat when patients stand behind the fluoroscopic screen has long been a commonplace of radiology. What is not seen by this method is the inner mechanism; the actual intake and outflow of blood by the valves and great vessels of that organ. By the introduction of an opaque medium into the blood stream, researchers of the profession, Doctors Ramsey, Sherwood and Olsen, of the University of Rochester, N.Y., and with a combination of fluoroscope and camera, have produced motion pictures which bring the complex action of the human heart in health and disease into dramatic visibility. And by a "looping" arrangement of the film, the studies can have adequate attention by virtue of reptition.

That radiotherapy, properly used, gives excellent results equalling those of surgery in the treatment of toxic goitre, was the substance of a paper by Radiologists Dufresne and Gill of Montreal. It has many advantages over surgery, they said, because it causes no mortality, has no complication and does not immobilize the patient. A guest speaker from Memphis, Tennessee, Dr. J. E. Whiteleather, told of his investigation of soft opacities seen on lung radiographs, and his interpretation of them as resulting from over-hydration.

Opaque media in the bronchial tree are essential in the radiographic diagnosis of certain types of pathology there, and Dr. W. E. Crysler of Brantford, Ontario, has long studied that field. He illustrated his work with x-ray motion pictures. Dr. J. G. Stapleton of Hamilton, described his findings by x-ray in the investigation of an elusive lung cancer. Dr. Brian Holmes, Toronto General Hospital, told of radiological sereach in certain mastoid conditions.

Are "x-ray martyrs" now but a poignant memory of the early days of the science? No! Blood mischief terminating in aplastic anaemia, can be induced by prolonged exposure to the stray rays of radium and the x-ray in the course of duty. This disease caused the death of Madame Curie, who discovered radium, and it is still exacting a toll of radiologists. Dr. G. H. Guest, senior scientific officer of the Department of National Health and Welfare, told the assembled radiologists of "possible" action by the Federal Government in setting up a monitor service to protect them from too much radiation in an organized way. It would involve the familiar dental or other small film carried on the person for stated periods, but with adequate checking by physicists for the degree of stray radiation registered.

Only a few of the twenty-odd papers delivered have been mentioned. All were of high quality, and the 14th Mid-Winter Meeting of the C.A.R. was an outstanding one, greatly appreciated by the members attending.

William Lloyd Ritchie, M.D.

1883 - 1950

WILLIAM LLOYD RITCHIE, M.D.

Just twenty-five years ago it was my privilege as a Radiographer on the staff of the Montreal General Hospital, to welcome Dr. W. L. Ritchie as Director of our department of Radiology, and to introduce him to the various members of the hospital staff.

My first impression of Dr. Ritchie on that memorable day was his cheery personality and kind disposition.

Now as I look back over those many happy years, I feel honored to have been associated with such a great person, who guided me over the rough roads that technicians encounter in their daily routine work.

All those who came in contact with Dr. Ritchie, feel as I do, that we have lost a wise counsellor, a scholar, and a kind and faithful friend.

Dr. Ritchie was born in 1883 at Beamsville, Ontario, and attended school there before entering Toronto University, from which he graduated as a bachelor of medicine in 1910. He interned at the Toronto General Hospital.

Later he went into general medical practice in Saskatchewan and British Columbia.

Some years later Dr. Ritchie decided to take up Radiology and went to New York to train under the direction of Dr. Lewis Gregory Cole. He later received the appointment of Assistant Radiologist at the Toronto General Hospital. His next appointment was to the Ottawa Civic Hospital as Chief Radiologist.

In 1925 Dr. Ritchie was appointed Director of the Department of Radiology at the Montreal General Hospital and served in that capacity until his retirement in 1948. He then became Radiological Consultant to the Montreal General Hospital and served as Radiologist at the Reddy Memorial Hospital up to the time of his death.

During the twenty-three years that Dr. Ritchie was with us, a tremendous change took place in the department. Many modern, up-to-date machines were installed and the staff was increased to five times the number it was when Dr. Ritchie first took over. A new Private Patients Pavilion was built, which is known as the Western Division and the Department of Radiology here was also under the direction of Dr. Ritchie.

Ten years ago I was advised by Dr. Ritchie to organize the Quebec Society of X-Ray Technicians, and he was our first Honorary President. He was also a member of our Board of Examiners and through his vast experience helped towards the advancement of our Association.

At that time Dr. Ritchie was Chairman of the Department of Radiology at McGill University, with the rank of Associate Professor of Radiology.

Dr. Ritchie was considered the senior Radiologist of Canada. He was a Fellow of the Royal College of Surgeons of Canada and contributed many scientific papers and articles to Canada's medical literature. He was a former Honorary Secretary-Treasurer of the Canadian Association of Radiologists.

Dr. Ritchie is survived by his wife, the former Gladys Morley Kennedy of London, Ont.; three daughters, Mrs. G. F. Cassidy of Port Credit; Mrs. W. S. Fields of Houston, Texas; Mrs. R. E. Connolly of Montreal; and four grandchildren.

—ROSEMARY O'HAGAN, R.T.

The Focal Spot

Volume 7 TORONTO WINTER 1951 Number 1

Editorial Comment

WE are glad to turn the remainder of this page over to Mr. J. P. Connell, R.T., of Regina, who has written the following Biographical Sketch of Past President P. Hunt:

P. E. HUNT, R.T.

It is indeed a pleasure to write a sketch on one of my very good friends whose name will always be mentioned with respect for his devotion to the C.S.R.T. and to all the members of this Society.

Mr. Hunt was born in Gloucestershire, England, and came to Canada in December, 1923, following service in the First World War. Mr. Hunt joined the staff of the Anti-Tuberculosis League at Fort Qu'Appelle in December, 1923. In March, 1925, he was transferred as technician-in-charge to the Saskatoon Sanatorium when that institution opened.

After 24 years of service with the Anti-Tuberculosis League, Mr. Hunt resigned to accept an appointment with the Provincial Government, primarily as Instructor and Supervisor of X-Ray Technical Services. With his head office in Regina, Mr. Hunt in this new position took over training of students in x-ray work. Through his very fine efforts many of the hospitals in the province are staffed by the students he has trained.

Mr. Hunt was recognized by the Provincial Government for his good work and in January, 1949, was promoted to Hospital Inspector with the Saskatchewan Health Services Planning Commission. This position he holds at the present time.

Mr. Hunt will not be lost to the C.S.R.T. in his new occupation. His interests are still with us and his sound advice and judgment in C.S.R.T. matters will still be looked for.

Mr. Hunt registered with the American Registry of X-Ray Technicians in May 1940. His work and organization ability was a great incentive to the beginning of the Saskatchewan Society. In May 1940, he was made a charter member and first President of the Society.

In 1941-42-43, he was a member of the Provincial Board of Examiners, and in 1944-45, a member of the Resolutions Committee of the C.S.R.T.

Never one to back away from more work, Mr. Hunt was elected and accepted the position of Vice-President and Secretary-Treasurer of the C.S.R.T. in 1945-46. As anyone who has held office with the C.S.R.T. in the early days will agree, this meant working all your spare time, yes and holidays too.

For his excellent work in the position, Mr. Hunt was elected President of the C.S.R.T. in 1946-47. In his term of office, Mr. Hunt with the assistance of his able committees, guided the C.S.R.T. along the channels that brought us to our present strong position in Canada.

Knowing they had a valuable man, he was elected Vice-President and Secretary-Treasurer following his Presidential term and was again asked to be our President in 1948-49. Mr. Hunt kept his connections with the Society unbroken when he was appointed Director of the C.S.R.T., representing the Saskatchewan Member Society. He has served on many C.S.R.T. committees and is currently Chairman of the Committee on Technical Training.

Mr. Hunt must look back on his service with the C.S.R.T. with a great deal of satisfaction, realizing that the long hours of work and energy he so generously contributed have left a lasting impression with us all and have favorably influenced the Society throughout Canada.

We all wish him the very best in his present position, and many more years with the C.S.R.T.

DR. PETRIE INJURED

News received by technicians across Canada with a distinct feeling of shock was that of the injury sustained by Dr. E. A. Petrie in a car accident early in January, soon after his return from the C.A.R. Convention at Niagara Falls.

Dr. Petrie suffered a fractured pelvis and is now in a cast and will be confined to bed for some three months.

As soon as word of his misfortune was received by the President, flowers were wired by the C.S.R.T. to Dr. Petrie. Arrangements were also made for subsequent floral gifts by the various Provincial Societies as a token of the high regard in which the Doctor is held by radiographers from coast to coast. May we add our sincere wishes for a rapid and uncomplicated recovery for one who has always proven himself such a good friend of our Society.

PAST PRESIDENT H. M. WELCH ILL

Misfortune also struck at another staunch friend of the Society in the person of our Immediate Past President. On January 30th, Mr. Herbert M. Welch was admitted to the Colonel Belcher Hospital, Calgary, suffering from a recurrence of an old gastric complaint. He was booked for an operation on February 6th, and we certainly hope that by the time this appears in print he will be feeling his old genial self again.

R.T. PAYS DIVIDENDS

According to reliable information the authorities at one of the Maritime hospitals have found it pays dividends to employ a registered technician. We understand they have found at the end of the fiscal year that not only has more work been accomplished with an accompanying increase in revenue of several thousand dollars, but also their expenses for supplies have shown a proportionate decrease. This supports the original assertion made by the C.S.R.T. that a Radiologist or Institution engaging the services of a Registered Technician can feel that they are serving the best interests of not only the patient and the refering physician but also of themselves. IT DOES PAY TO ENGAGE REGISTERED TECHNICIANS.

DON'T MISS OUT ON REGISTRY THIS YEAR

The next issue of *The Focal Spot* will contain the 1951 C.S.R.T. Registry. As the issue goes to press in March it is essential that the lists of paid-up members be sent in to the Registrar, Miss K. Creelman, by the Provincial Secretary-Treasurer before that time. So make sure that your name is in the new Registry by paying your 1951 dues to your Provincial Secretary at once. Last year the Spring issue of *The Focal Spot* was held back several weeks because a complete province had not sent in their returns. We cannot do this again so Provincial Secretaries please note—Returns must be sent in to the Registrar by March 15th, at the latest.

SEND IN THOSE PAPERS—NOW

It is some time since the Editor made an appeal for more articles. This is not because the need is less urgent but because we get a bit tired of harping on this theme. However the barrel is again getting too low for comfort and more articles are needed at once—for the next issue. Longer and more comprehensive articles —eight to ten typed pages—are particularly desired, although shorter ones are also very welcome. This is your magazine; do your share towards maintaining it.

JOHN DOUGLAS FRASER

Whose appointment to the position of Sales Manager for Manitoba has been announced by the X-Ray Division of Philips Industries Limited.

Mr. Fraser is a well-known Western Canadian x-ray technician and prior to joining the world-wide Philips organization compiled an imposing record in his chosen field. His experience includes five years as x-ray technician with the travelling clinic in the western provinces and a further two years in a similar capacity with the Army Medical Corps.

In 1945-46 Mr. Fraser attended the University of Manitoba for pre-medical studies, then joined the staff of Deer Lodge Military Hospital as x-ray technician. Then followed three years as chief x-ray technician for the Mall Medical Group in Winnipeg, terminating in his latest appointment as Manitoba sales manager for the X-Ray Division of Philips Industries Limited.

Mr. Fraser is 32 years old and was born in The Pas, Manitoba. His headquarters will be the Winnipeg office of Philips Industries Limited, located at 149 Portage Avenue East.

continued from page 7

his host of friends and associates in best wishes for a speedy recovery.

We offer our condolences to Miss Jean Roberts, Winnipeg Clinic, in the loss of both grandmother and grandfather.

Changes in the city have been many lately:

Miss J. Haughton has transferred to the office of Drs. McMillan, McPherson and Childe. Miss Courchenne has returned from B. C. to work at the Hollenberg Clinic. Mrs. C. Coulson is now at the Victoria Hospital, and Miss Frances Taylor has left Winnipeg to work at the Bigilow Clinic in Brandon. Mr. Gus Strand is now chief technician at McKellar Hospital in Fort William, and Miss Jean Roberts has changed from Hollenberg Clinic to the Winnipeg Clinic. Mr. Bob Harmer has transferred from Portage la Prairie to Prince Albert, Sask. Best of luck to all of you in your new fields.

—OLIVE GUNDRUM, R.T.,
Sub-Editor.

ONTARIO SOCIETY OF RADIOGRAPHERS

The Fall meeting of the Eastern Section of the Ontario Society of Radiographers, was held at 3.00 p.m. on November the 18th, 1950, at the Ottawa Civic Hospital. Mr. K. E. Hall, Chairman, welcomed the members and guests. The minutes of the previous meeting held in Ottawa, on April 29th, 1950, were read and adopted. No new business arose from the minutes. It was moved by Miss Menzies, and seconded by Miss Cleveland, that the meetings for 1951 be held in Brockville, if the members in Brockville so approve; if not the meetings to be held in Ottawa again.

Mr. H. A. Clark, of the Royal Ottawa Sanatorium, was elected as Chairman and Miss M. Menzies as Secretary-Treasurer for 1951.

Mr. Hall introduced Mr. John Collins, R.T., President of the Ontario Society, who gave us a very interesting report on the Dominion Convention held in Vancouver.

A sound film on Radiography of the Lumbar Spine was shown, and enjoyed by everyone. Miss Frances Garnet, R.N., R.T., Ottawa Civic Hospital, gave an enlightening paper on Tinae Capitis (ringworn). Her paper was accompanied by some very interesting slides. Mr. Robert McCaw, R.T., from Sunnybrook Memorial Hospital, Toronto, gave us a talk on the use of Technic Charts. His talk was also accompanied by some excellent slides.

Mr. Smith, of Smith's Falls, was the lucky winner of the $5.00 for the best radiography of the knee. There were not as many exhibits as we had hoped for, but, maybe everyone will bring films to the next meeting.

At the close of the meeting, tea was served in the X-Ray Department.

At this time, the Eastern Section would like to express our sincere thanks to Mr. Collins and Mr. McCaw for the interest they have taken in attending our district meetings.

A meeting of the Central Section of the O.S.R. is slated for February 21st at St. Joseph's Hospital, Hamilton, which now has a new x-ray department. An unusually interesting programme has been prepared, including a pre-view by Mrs. Mary Cameron of part of her 1951 ASXT Refresher Course and a demonstration of Smith-Petersen radiographic procedure.

—ADA GELDART, R.T.,
Sub-Editor.

NOVA SCOTIA SOCIETY OF RADIOGRAPHERS

CAPE BRETON SECTION

Twenty members were present at a meeting of the Cape Breton Section held in connection with the Regional Hospital meeting, Monday, November 27th, 1950, at the City Hospital, Sydney. Mrs. Greta MacPherson presided.

The main topic for discussion was the problem of raising money for the Refresher Course which will be held in May. Nothing definite has been decided as yet, but we expect to have some information for the next issue of the Focal Spot. After the business session was completed the election of officers for the coming year took place, as follows:—

Honorary President, Dr. H. R. Corbett, Sydney.
President, Sister John of the Cross, St. Rita Hospital.
Vice-President, Miss McRae, Glace Bay General.
Secretary-Treasurer, Sister Francis Grace.
Sub-Editor Focal Spot, Sister Florence Annette.

To our retiring officers we say "A hearty thank-you" for a job well done. We who follow in your footsteps wil try to maintain what you have so well accomplished.

We are sorry to hear that Mrs. Greta MacPherson, chief technician at the General Hospital, Glace Bay, is resigning in January. Mrs. MacPherson has been a loyal and tireless worker for our Society for many years. We will miss her wise counsels and helpful suggestions, however we know husbands have to be looked after too. Mrs. MacPherson had told us she will still be attending our meetings which lends a tint of silver to this dark cloud.

Here in Sydney we were delighted to have Mr. Perry visit us. Mr. McLean from the City Hospital came over to St. Rita's and many ideas and suggestions came to the fore.

We have always marvelled as to how Mr. Perry gets his inspirations and ideas. He left us with a few to ponder over on this occasion. We were disappointed he could not remain with us for our meeting but time did not permit. We are hoping that some time before May he will favor us with another visit.

Congratulations, Mr. Perry, on your recent appointment as Vice-President of the C.S.R.T. We down here, where the East begins, wish you every success.

—SISTER JOHN THE CROSS, R.T.,
Sub-Editor.

QUEBEC SOCIETY OF X-RAY TECHNICIANS

A meeting of the Quebec Society of X-Ray Technicians was held at St. Justine Hospital, December 2nd. Sr. Jeanne de la Immaculee gave the address of welcome on behalf of the hospital and introduced the guest speaker, Dr. Marc Del Vecchio, radiologist of that hospital. His address was entitled "Les Radiations Inconnu." After a short business session light refreshments were served and a visit paid to the X-Ray Department. We were very pleased that Mr. Cheffins, our president, was able to announce the names of the successful candidates in the fall examinations as the results have been released much earlier than ever before. The following are the new R.T.'s, whom we heartily welcome to our Society:—

Janet Bryson, Royal Edward.
Camille Picard, St. Luc.
Margaret Hargreaves, R.V.H.
Christine Horne, R.V.H.
Adrien Jobin, Hotel Dieu de Quebec City.
Marguerite Deschamps, Hotel Dieu de Sorel.
Mona Nueman, Jewish General.
Beryl Plant, Jewish General.
Phyllis Rowe, Jeffery Hale.
Bunny Schneiderman, Jewish General.
Sr. St. Berenice, Hospital de la Misericorde.
Sr. St. Emile, Hotel Dieu Hospital, Sherbrooke.
Emily Steel, M.G.H.
Josette Turgeon, Sherbrooke.
George Wilkinson, St. Luc.

A general meeting of the Province of Quebec Society of X-Ray Technicians was held in the Recreational Hall, Ciba Building, Montreal, on the evening of January 26th.

Miss Therese Blain, who is on the staff of Hotel Dieu, gave an address on "Therapy".

Mr. Roy Granger, our good friend of C.I.L., showed a very entertaining colour film on "This is Nylon." Mr. Granger was thanked by Mr. Simpkins of the R.V.H.

Certificates were presented to the successful candidates in the fall examinations by Mr. Simpkins.

After a brief business meeting, our old friend, Mr. Arthur Elsey of C.I.L., was host to the gathering and entertained us in his own inimitable way during a pleasant social hour.

Our thanks go to these C.I.L. representatives, who put a lot of effort into making our meeting a success.

—EDWINA BOA, R.N., R.T.,
Sub-Editor.

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SASKATOON

A meeting of the Saskatoon Branch was held at the City Hospital on October 11th with Miss May Alldred as Chairman. Dr. A. B. MacDonell presented a lecture, "History of the Roentgen Ray," which dealt with the rapid advances of the past fifty-five years of roentgenology. Mr. K. B. McKenzie, Saskatoon representative of the General Electric X-Ray Corporation of Canada, presented a lecture of great technical interest on "Photo-timing Devices." Many thanks to Dr. MacDonell and to Mr. McKenzie for giving so freely of their time in order to make our meetings of greater value.

The election of 1950-51 officers for the Saskatoon Branch took place after the lectures. Results were as follows:

Chairman ..... Wilfred Hildebrand, R.T.
Secretary-Treasurer ..... Phyllis Uchman, R.T.
Program Committee .....Wm. Attridge, R.T.,
George Derrick, R.T.

Refreshments were served by the house technicians.

The meeting of November 8th was held at the Nurses' Home of St. Paul's Hospital. Mr. Wilfred Hildebrand presided. An excellent lecture on "X-raying Fractures to Obtain the Most Information" was given by Dr. W. A. Costantini. Dr. Costantini stressed the necessity of multiple views. Miss Marie Perron, R.T., read her report as delegate to the Vancouver Convention. Educational films were shown and refreshments were served by the house technicians. Eighteen members were present.

Congratulations to the following successful candidates in the November examinations:

Miss Ivy Joyce Archer, Miss Patricia Grimes, Miss Marion Liston, Miss Doreen Alice Symon, Mr. Edward A. Boryski, Mr. Wilfrid Hildebrand, Mr. Zenon Pawliuk.

The following have heard the call of Cupid and left their present profession for a more permanent one:

Miss Jeanine Longtin, Miss Jean Houghton, R.T., Miss Jean Ross, R.N., R.T.

Members on new positions:

Miss Marion Liston, R.T., Drs. MacDonell & Spencer, Saskatoon.

Miss Yvonne Tanguay, General Hospital, Regina.

Miss Rita Shear, Wadena Union Hospital.

Welcome back to Saskatchewan to Miss M. M. Purdey, R.N., R.T., who has just returned from a lengthy holiday in the British Isles.

REGINA

The Regina Branch commenced activities on October 19th, 1950, at the Grey Nuns' Hospital. New executives were elected and are as follows:

Honorary President .....Dr. A. E. Perry
President .....Grant Dahl, R.T.
Vice-President ..... Douglas Penley, R.T.
Secretary-Treasurer ..... Doreen Symonds, R.T.

Attendance was greatly enlarged by the participation of the Moose Jaw technicians. We were very happy to have you, Moose Jaw; come again soon. It was suggested by Mr. P. E. Hunt that Moose Jaw send a representative to, or write to our meetings in order that they may participate in our various activities. Films on electronics by General Electric and Westinghouse were shown, and were most interesting. Thanks to Jim Connell for getting these films for us. The evening was ended with a very nice lunch provided by Sister Hopcraft.

The well-attended November meeting was held in the Medical Arts Building. The majority of the time was allocated to business, and the evening was finished off by a report on the Vancouver Convention furnished by Jim Connell and P. E. Hunt.

The annual Christmas party and coming Provincial Convention at Regina was discussed and committees for both functions were elected.

New Regina members and students:

H. L. Norquay, Grey Nuns' Hospital; J. Fink. Grey Nuns' Hospital; R. Parker, Grey Nuns' Hospital; J. Farrow, Medical Arts Building.

News of Regina members:

I. Joynt of the Grey Nuns' Hospital left to be married. P. Toupin of the Grey Nuns' left for Maple Creek. J. Logan of the Grey Nuns' is now married. E. Guay of the Grey Nuns' Hospital announces her engagement. Miss MacPherson is now Mrs. Nepper at the General Hospital. Miss P. McEachern from the Miser-

cordia Hospital in Winnipeg is now on staff at the General Hospital.

MOOSE JAW

With the hope of better road conditions and fewer sick leaves, we are anticipating a grand turnout for the next meeting, which is to be held in Moose Jaw at Providence Hospital. The senior technicians are expected to display their "savoir faire" in presenting to the students a series of answers to old examination papers. In this way we hope that the older members will be able to help in some measure the younger members so that when their big day comes for examinations, they will be a little beter prepared to meet the situation.

Mr. Douglas Penley, our former President, has left for a trip to California, motoring all the way (we hope) in his Hilman Minx. We sincerely hope that the little man in the little car will get there safely and that the holiday will be a very enjoyable one.

—SR. M. ROSAIRE, R.T.,
Sub-Editor.

AN OPEN LETTER TO HOSPITAL ARCHITECTS

With your approval, Mr. Editor, we would like to submit a little item here, in the hope that it will eventually find its way into the hands of those whom it concerns mostly.

In the name of all our fellow men and women technicians, who have to do most of their work in basements, we have one little plea to make to those whose duty it is to plan, or assist in planning, the building or remodeling of hospitals, and that is with regard to the location of the X-Ray Department. Please, Mr. Architect, leave us out of the basement!

Has it ever occurred, we often ask ourselves, to these "higher-up ones", to realize the harmful effects of x-rays? Do they ever consider the depressing, oftentimes gloomy atmosphere of a basement? Or again, and most important of all, has it ever entered their minds that an x-ray personnel, more than any other hospital personnel, needs all the sunshine and fresh air available to counteract the effects of that penetrating ray, which has no respect for the individual? So again, we ask those in whose power lies the planning of x-ray departments to please leave us out of the basement!

The arguments sometimes offered in favor of basements for x-ray departments are such as these: It is handier for ambulance cases; it is closer to the ambulance drive; machinery should be in basements; an x-ray department should be dark, etc. To these we reply:

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3. Last, but not least, what an elevated feeling of exaltation one gets when able to look out and see God's wonderful creation in the green grass of summer fields, in the white blanket of snow on winter lands, in the trees, the twitter of birds, the open sky!

A little incident occurred recently, which if inserted here, will bring out a point in favor of our poor sick ones who must visit the x-ray department during their sojourn in hospital.

A patient was met wandering about the first floor of a hospital one day when the Sister from the x-ray department happened to be going by. Seeing the worried look on the patient's face, the good Sister promptly inquired what the matter might be. The poor patient, looking rather anxiously at the Sister, replied: "Sister, I was wondering how I could get to the cellar, I have to go there to have an x-ray."

You see what I mean?

So please, Mr. Architect, leave us out of the basement, won't you?

The Saskatchewan Society extends a hearty welcome to the following new members:

Miss Jean Armstrong, Union Hospital, Cabri.

Miss Estelle Bouvier, Providence Hospital, Moose Jaw.

Miss Marjorie Broatch, Union Hospital, Imperial.

Mr. Richard Borys, Union Hospital, Preeceville.

Miss Pearl M. Curtis, Union Hospital, Nipawin.

Miss Gale Freeland, Victoria Hospital, Prince Albert.

Miss Justina Fink, Grey Nuns' Hospital, Regina.

Miss Juana J. Farrow, Medical Arts Clinic, Regina.

Mr. Douglas McGregor, Union Hospital, Central Butte.

Miss Barbara R. Parker, Grey Nuns' Hospital, Regina.

Miss Pauline J. Yoos, Victoria Hospital, Prince Albert.

Best wishes to the following members who have left the province:

Sister F. Michaud, now at St. Theresa Hospital, St. Paul, Alberta.

Sister Therese Amable, now at St. Eugene Hospital, Cranbrook, B.C.

Miss Irene Domes, R.T., now at Mission, B.C.

Your sub-editor is badly in need of manuscripts. If you have any articles of technical interest or any new methods and technics which you would like passed on, just mail them to me at the Union Hospital, Kamsack. Your manuscript is needed—now.

—R. D. BRADLEY, R.T.,
Sub-Editor.

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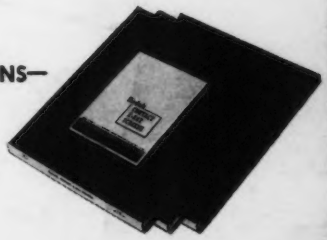

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